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Food Aid: A Cause, or Symptom of Development Failure or an Instrument for Success?

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Abstract

The role of foreign aid in the form of food in furthering economic development of poor countries and in alleviating adverse impacts on the poor of structural and sectoral adjustment programmes in these countries is discussed. A simple analytical framework for evaluating the incentive and welfare impacts of food aid is suggested. Because of policy interventions, domestic and international markets for food have been historically subject to severe distortions leading to ever growing food stocks in some, mainly rich, countries while in others, largely poor, many cannot afford to consume enough food. The possible impact of distortion-free global food markets is sketched. The use of surplus food for payment of wages-in-kind to workers employed in rural works programmes thereby creating productive assets while alleviating poverty has often been proposed. With an applied general equililbrium model of the Indian economy, it is shown that a well-designed and efficiently implemented food-for-work programme can virtually eliminate abject poverty in India at a modest cost. Experience with food aid in several other countries is also briefly discussed.

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1. Introduction

Any form of aid from one agent (individual, household, nation) to another is an unrequited transfer from the former to the latter. Yet the donor may often expect or receive some favors from the recipient in other forms (e.g. political concessions or support in exchange for economic aid). Aid need not always be beneficial to the recipient nor need it involve some sacrifice on the part of the donor. Some have suggested that developing countries, in accepting economic aid, have in effect obtained short-term benefits at the cost of long-term dependency. Others argue that aid (in which one should also include loans at concessionary terms) from governments and multilateral agencies is in large part a correction of the imperfect international markets for capital and risk sharing and shifting. Of course humanitarian concerns for the poor in developing countries and the desire to reduce tensions and political instability arising from economic deprivation are also among donor objectives. Besides objectives of donors and the impacts on recipients, there are issues relating to quality of aid (whether it is tied to projects, commodities or to purchases from donors, or it is completely unfettered program aid) and its effectiveness in achieving whatever objecives the donors and recipients expected to achieve. Two very interesting recent studies, Cassen (1984) and Krueger and Ruttan (1983), explore the larger concerns about aid in depth. This paper is limited to food aid and its role in furthering economic development of poor

countries. Food aid can also be helpful in alleviating adverse impacts on the poor of structural and sectoral adjustment programs that many developing countries are undertaking. Some of the ground is well covered in the voluminous literature on food aid (Hopkins (1984, 1987), Mellor and Ezekiel (1987), World Food Programme (1983, 1985), Wallerstein (1980) to mention only a select few). It is hoped that this paper will add some insights to those available in them. For an iconoclastic analysis of hunger, see Lappe and Collins (1977).

Food aid by definition is commodity tied aid: it makes available certain quantitites of one or more commodities (foodgrains, edible oils and fats, dairy products etc) at concessional terms, if not as outright gifts, to recipients. Food aid, other than as emergency relief when famines or other abnormal circumstances arise, is of two forms: project aid, where food aid is tied to the implementation of projects mutually agreed upon by the donor and recipient, and untied program aid. If a project is defined broadly enough to include policy reforms or changes, then the so-called policy conditional food aid would be covered under project aid. I will discuss emergency food aid for relief of famines and natural disasters only briefly. My concern is mainly with longer term food aid.

Hopkins (1984) points out that food aid has evolved from its inception in the fifties as a means for disposal of food surpluses in donor countries to a policy tool for promoting economic development in the recipient countries in the eighties. The volume of food aid has fluctuated reaching a low ironically during the food crisis of 1973-74. The recovery since then has not restored the volume to the levels of the mid-sixties. Table 1 provides the relevant data. In the mid-sixties the USA was essentially the only food aid donor. By the mid-eighties EEC has emerged as a significant donor. In large part this reflects the growth of

food surpluses in the EEC as a consequence of its common agricultural policy of price support and protection of agriculture within EEC and the reduction in US food stocks. Thus, surplus disposal as an objective has not completely disappeared from the food aid scene. Even though liberalization of agricultural trade is one of the items on the agenda of the ongoing Uruguay round of multilateral trade negotiations and the costs of domestic agricultural subsidy programs are spiralling in the US and EEC, it is unlikely that either the programs or the surpluses will disappear anytime soon.

Food aid can further economic development of developing countries through several channels: first and foremost, just as any form of aid it adds resources that can be used for current consumption or accumulation; second, it provides balance of payments support just as any other form of foreign aid; third, as food aid, it augments the domestic availability of food (though not necessarily on a one-to-one basis); fourth, to the extent it is targeted at the poor it can alleviate poverty which is a major goal of economic development. By improving the health and nutritional status of the poor it augments their human capital and future income earning capability; fifth, food aid tied to development-oriented projects that would not have been undertaken otherwise, promotes development; and sixth, to the extent it can be credibly tied to the initiation of growth-promoting policies and reform, if not abandonement, of policies detrimental to growth, it can obviously promote development. This last role can be important in the structural adjustment process. Adjustment to unanticipated shocks as well as reform of entrenched policies involve political and economic costs. External aid, including food aid, can in some situations increase the credibility of reforms by alleviating these costs. The operative word in all the above is "can" and not "will."

Table 1

Cereal Aid by Principal Donors

(Million tons)

Donor	1965-66	1967-68	1972-73	1974-75	1984-85
Australia	-	0.19	0.26	0.33	0.48
Canada	-	0.80	0.81	0.61	0.94
EEC	-	-	0.99	1.41	2.47
USA	17.32	13.50	6.95	4.72	7.54
TOTAL (including others)	17.73	16.22	9.96	8.40	12.52

Source: Food And Agriculture Organization (1985) Food Aid in Figures, Rome.

Whether the potential of food aid for furthering development will be realized in full measure depends on the flexibility with which it is used, whether other objectives of donors conflict with the objective of economic development, and whether the domestic, economic, political and institutional environment in recipient countries is conducive to efficient utilization of food aid as a development tool.

Section 2 is devoted to the analytics of food aid. In Section 3 the impact of global agricultural trade liberalization is taken up. Since surplus disposal has been an objective of food aid and the emergence of agricultural surpluses in the developed (and even in some developing) countries is a consequence of protection, it is worth analyzing the costs and benefits to developing countries of a liberal trade regime in agriculture. It is also worthwhile to see what extent additional food availability in the global market, as contrasted with targeted aid, will improve nutritional status in developing countries through reduced world prices of food. This section will draw on the simulations from the Basic Linked System of Models (BLS) of the Food and Agriculture Project of the International Institute for Applied Systems Analysis (IIASA). In Section 4, the India model of the BLS is used to analyze the impact on the poor of an expansion of the subsidized system of public distribution of foodgrains and of the so-called food-for-work program in which rural labor from poor households are employed in slack agricultural seasons in creating public works (roads, irrigation works, schools, etc) and paid in kind (at least in part) with foodgrains. These simulations are of some interest, since one of the more important objectives of food aid is poverty amelioration and improvement of nutritional status, and food-for-work programs are prime examples of projects to which food aid is tied. Section 5 briefly

reviews some salient features of the experience with food aid. Section 6 concludes the paper with few remarks on past experience with food aid and policy implications for the future.

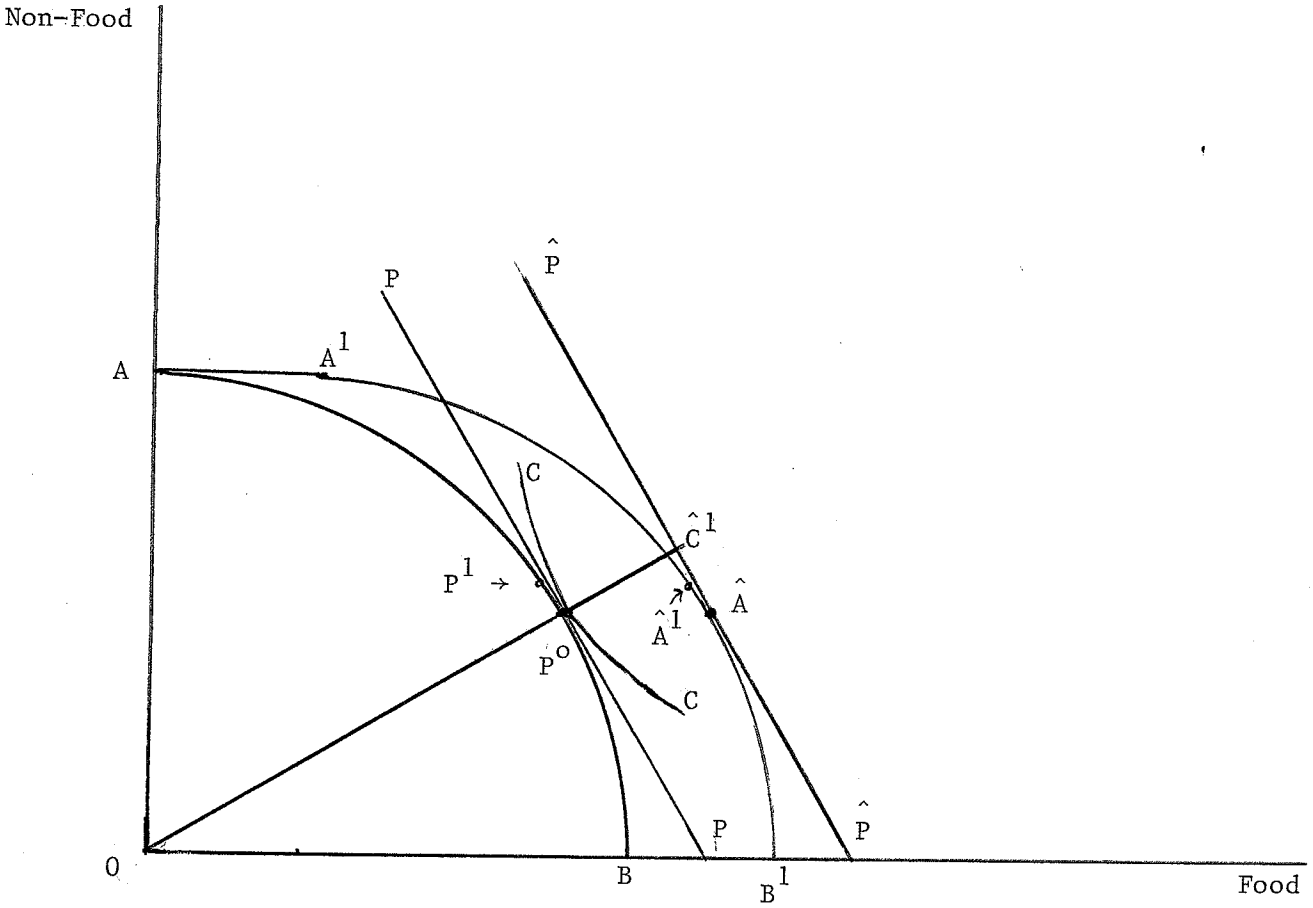
2. Some Simple Analytics of Food Aid

The standard work horse of international trade theory, the two commodity general equilibrium model, can be used to illustrate some of the analytical issues involved in food aid, as indeed, Bhagwati (1986) did to great effect. We reproduce and extend his analysis below. Consider a country producing and consuming two aggregate commodities, food and non-food. The production possibility frontier (PPF) of this country is AB in Figure 1. The preferences of its citizens are represented by a set of Samuelson social indifference curves (SIC). Assume, to begin with, that the country is in autarkic equilibrium with its production and consumption at P^o, where the SIC represented by CC touches the PPF. The equilibrium domestic relative price of food in terms of non-food is the common slope of the PPF and SIC at P^o. The common tangent is shown as PP. Suppose the country (its government) is offered food aid, gratis, in the amount AA^1. What will be its effect on domestic prices, production and welfare? Of course, the answer will depend on how the recipient government responds to aid and/or conditions, if any, that the donor imposes on the recipient.

2.1. Incentive Effects

(a) Suppose the government sells the food received as aid in the open market and returns the sale proceeds to consumers as lump sum income transfers. The resulting equilibrium can be derived by shifting the PPF to the right by the distance AA^1 so that the domestic availability curve with aid is AA^1B^1. If the domestic price remained unchanged as the

Figure 1



slope of PP (hereafter referred simply as price PP), output will be at P^o so that domestic availability is at $\hat{A}$ at which the slope of the tangent $\hat{P}\hat{P}$ to the availability curve AA^1B^1 also equals the price PP. If we assume for simplicity that social preferences are homothetic, demand at price PP and disposable income $O\hat{P}$ in terms of food (including the value of food and received as lump sum transfers) will be $\hat{C}^1$. Thus, there will be an excess supply (demand) of food (non-food) forcing relative food prices down. Equilibrium obtains at the point A^1 to the left of $\hat{A}^1$ on the availability curve at which an SIC (not shown) touches it. The corresponding production point is P^1 on the PPF to the left of P^o. Comparing P^1 with P^o, it is seen that the equilibrium domestic relative price of food (i.e. the slope of PPF at P^1) has fallen and so has the output food. This illustrates the oft-cited production disincentive effect of food aid. Is this undesirable and inevitable? The answer is clearly no. Before we illustrate other possibilities, let us note that even though domestic price of food and its output have fallen, consumer welfare at C^1 is clearly higher than at P^o. With the use of lump sum transfers to counter any adverse income distributional effects among citizens, and given that aid is a transfer that augments the commodity availability set of the economy, it can only improve social welfare. That is, gainers from aid, i.e. consumers as a whole and non-food producers, can fully compensate the losers, i.e. food producers, and still gain. Thus the fall in the relative price of food and its output have not led to any undesirable consequences in this illustration.

Suppose the government wishes to maintain producer incentives while absorbing food aid by not allowing domestic relative price to fall from PP. To be able to do this, consumers have to be in equilibrium at $\hat{A}$. They will be, if the relative price of food facing them is the slope of the SIC passing through $\hat{A}$. Clearly this price will be lower than PP.

The reason is that price PP is also the same as the slope of $\hat{P}\hat{P}$. $\hat{A}$ and $\hat{C}_1$ both lie on $\hat{P}\hat{P}$. Since an SIC touches $\hat{P}\hat{P}$ at $\hat{C}^1$, the slope of an SIC passing through $\hat{A}$ which is to the right of $\hat{C}^1$ (i.e. involving more consumption of food than at $\hat{C}^1$) has to be smaller. This implies that a food subsidy for consumers (or equivalently a tax on non-food) will be called for to ensure consumption at $\hat{A}$. With this distortionary wedge between consumer and producer prices, it is not surprising that consumer welfare at $\hat{A}$ (where an SIC intersects AA^1B^1)) is lower than at $\hat{A}^1$ (where an SIC touches AA^1B^1)), but of course higher than at P^o. If the intervention is in the form of a consumption tax on non-food, the problem of financing does not arise--the tax revenue as well as the proceeds from food aid are returned to consumers as lump sum transfers. This is seen as follows (Figure 2). Value of consumption in terms of untaxed food (at $\hat{A}^1$) at consumer prices = OT^1 = Value of production at producer prices OT^o (≡ factor income) + Taxes on non-food consumption $T^o\bar{T}^o$ + Value of food aid $\bar{T}^oT^1$. Tax revenue equals $T^o\bar{T}^o$ because the value of non-food consumption (P^oQ^o) at tax inclusive consumer prices is $Q^o\bar{T}^o$, while its value at producer prices is Q^oT^o, the difference being the tax revenue.

Suppose taxing non-food consumption is infeasible. Then food cnsumption has to be subsidized--thus, part of the value of food aid (at domestic prices) is used up in financing the subsidy and the rest is transferred to consumers in a lump sum. Thus, OV^1, the value of consumption at domestic consumer prices in terms of non-food = Value of production at producer prices OV^o - Food consumption subsidy $V^1\bar{V}^o$ + Value of food aid V^oV^1. Food subsidy equals $V^1\bar{V}^o$ since the value of food consumption at subsidized prices equals R^oV^1, while its value at producer prices is $R^o\bar{V}^o$.

It is also obvious that producer incentives could have been maintained

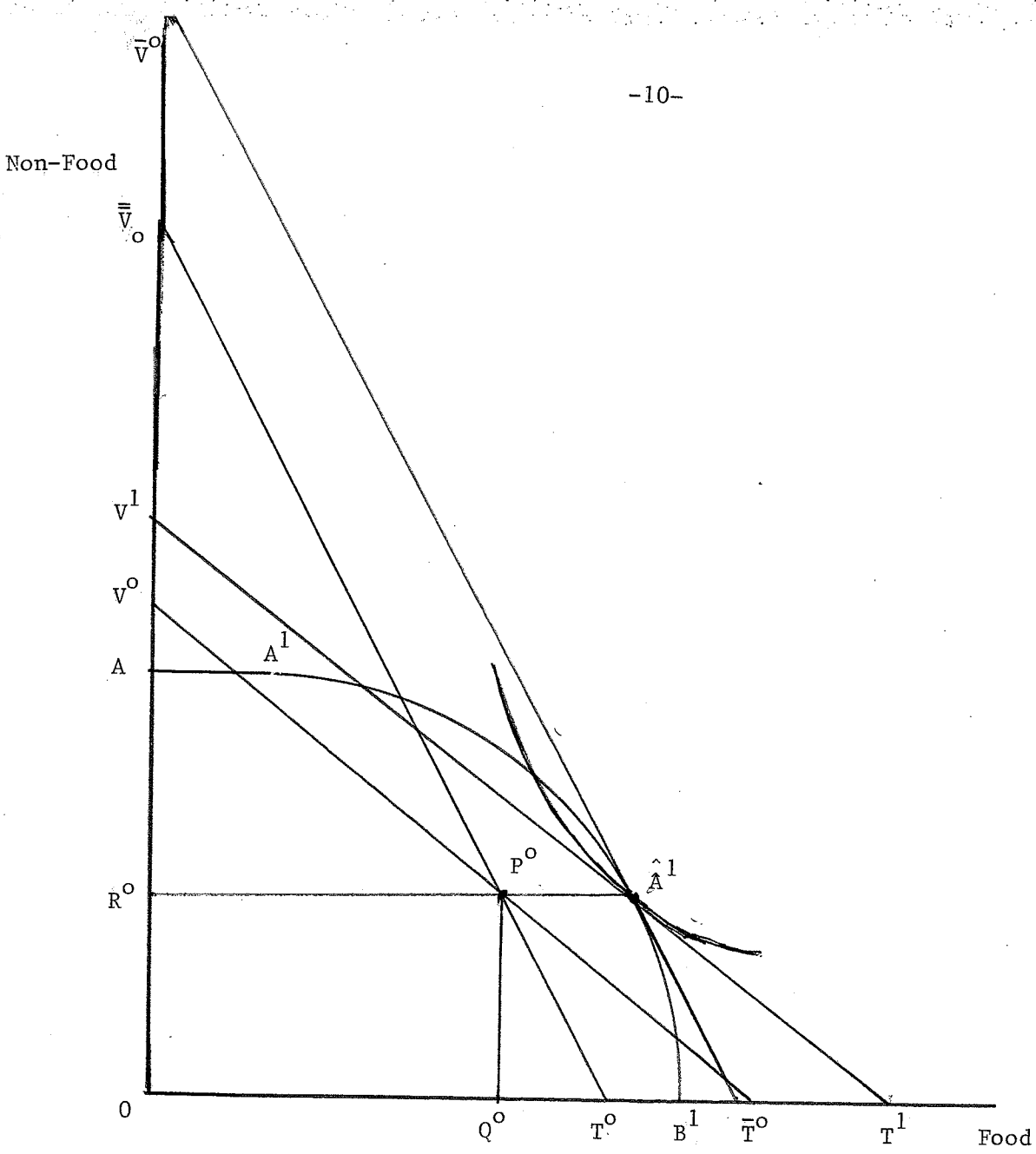

$\bar{V}^o$
Non-Food
$\bar{\bar{V}}_o$
V^1
V^o
A
A^1
R^o
P^o
$\hat{A}^1$
0
Q^o
T^o
B^1
$\bar{T}^o$
T^1
Food

Figure 2

through a production subsidy on food relative to the consumer price at $\hat{A}$ or equivalently a production tax on non-food. Again when a subsidy instrument is used only that part of the value of food aid net of subsidy is transferred to consumers in lump sum. For completeness, take the first case. Here the value of consumption in terms of non-food OV^1 = Value of production at consumer prices $\overline{OV}^o$ + Production Subsidy $\overline{V}^oV^o$ - Value of food aid $V^1\overline{V}^o$.

The essential points of these illustrations are simply these: food aid being an unrequited transfer adds to domestic resources and at the same time, adds to domestic food availability. Under laissez-faire, with prices unchanged, since the additional resources will not be all spent on food, relative price of food has to fall to absorb the additional food. However, consumer welfare will unambiguously rise. An intervention is needed if the price fall is to be prevented or mitigated. If this intervention takes the form of a food consumption subsidy or an equivalent production subsidy, part of the additional resources will be used up in financing the subsidy. This distortion-creating intervention will reduce the welfare gain from food aid compared to laissez-faire, but the gain is still positive. Thus the fall in food prices with aid is neither undesirable, if it occurs as in the laissez faire situation, nor is it inevitable, since it can be prevented through government intervention albeit at some welfare cost.

2.2 Mitigating Price Inflation

It is sometimes suggested that food aid, far from creating a (production) disincentive effect due to a fall in relative price of food, will in fact help mitigate price inflation that would have come about in its absence. Implicit in this argument is the assumption that food aid alleviates an incipient excess demand at the initial prices. Presumably the excess demand arises because the government expands development expenditure without at the same time raising the needed resources through taxes. It is not always made clear whether the argument is about general price inflation or about the possible rise in relative price of food (i.e. food price inflation). We will illustrate both versions, although illustrating nominal price inflation using a real model and diagram is a bit clumsy: in what follows nominal flows and real flows are both measured in the same axis and the underlying monetary system and behaviour are left implicit.

Consider first the case when the government wishes to acquire goods worth T^oT^1 (see Figure 3) in terms of food at the initial prices, say, for public investment. Given our homotheticity assumption, if it levies a lump sum tax equal to $T^o\bar{T}^1$ in terms of food, private consumption will move to $\bar{C}^1$ with no change in prices and the government would have acquired the resources. Suppose such taxation is infeasible but the government nevertheless <u>attempts</u> to acquire these resources by adding to aggregate spending in the amount T^oT^1 (where $T^o\bar{T}^1 = T^oT^1$) so that aggregate spending in <u>nominal</u> terms is OT^1. Assume that the composition of government demand in terms of food and non-food is the same as private demand. Aggregate demand at nominal expenditure OT^1 and at initial prices will then move to C^1, while output stays put at P^o, thus creating excess demand for both goods. With <u>nominal</u> income of consumers (and nominal

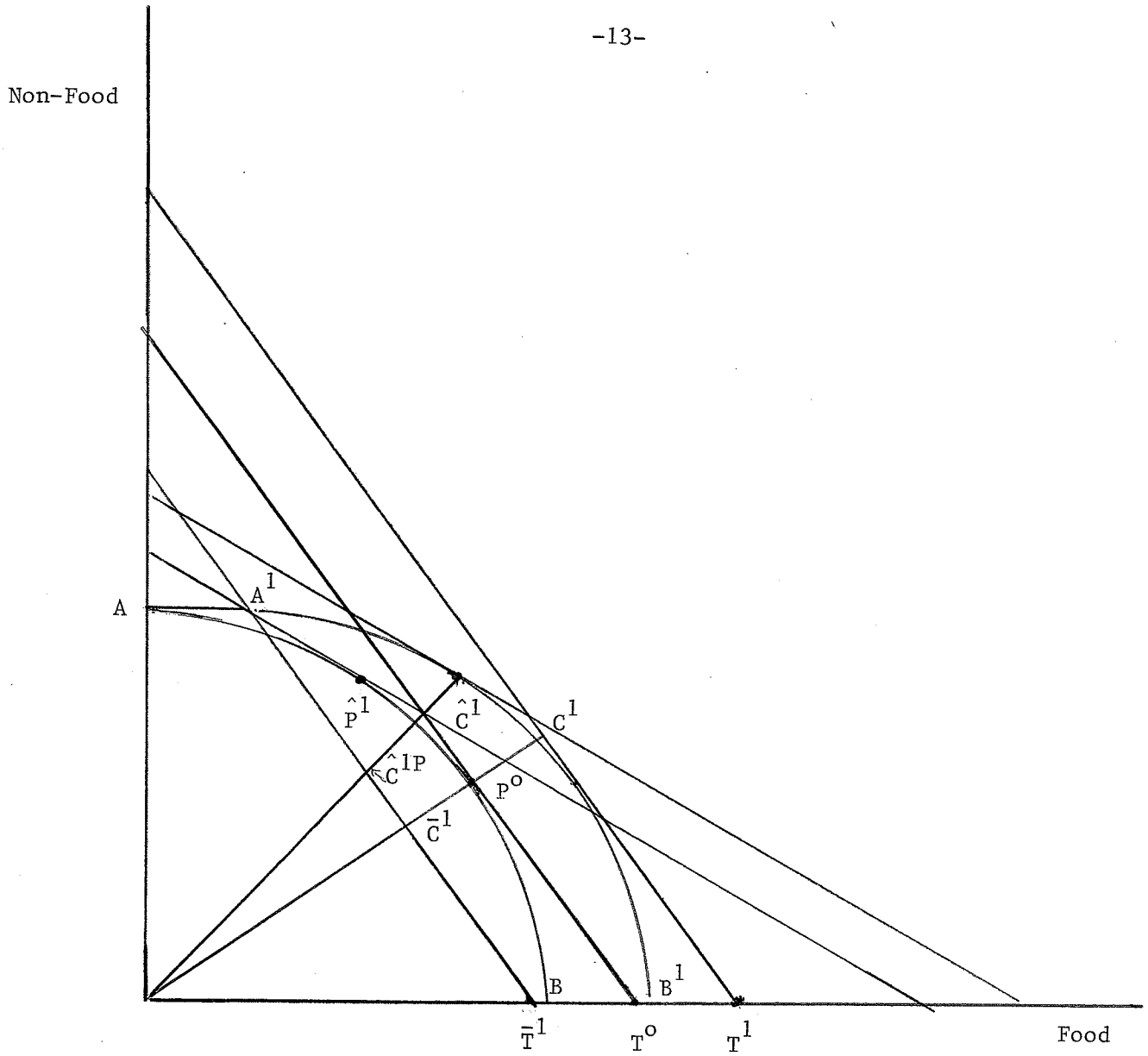

Non-Food
A
A^1
$\hat{P}^1$
$\hat{C}^1$
C^1
$\hat{C}^{1P}$
P^o
$\bar{C}^1$
B
B^1
$\bar{T}^1$
T^o
T^1
Food

Figure 3

expenditure of government) both unchanged at OT^o and T^oT^1 respectively, a nominal price inflation (in the ratio T^oT^1/OT^1) will push real aggregate expenditure back to OT^o and equilibrium is restored. However, the government acquires only a proportion, OT^o/OT^1, of the resources it wished to acquire through the "inflation tax." Of course, it could have acquired <u>real</u> resources equal to T^oT^1 if its nominal expenditure has been set at a level that would have produced <u>real</u> revenues through the inflation tax of that order.

Before turning to aid tied to food, let us dispose of a simpler case of untied aid. If non-food aid is also available, if the government received both commodities in amounts equal to the difference between C^1 and OP^o, then clearly there will be no price inflation--OT^1 will in fact be real expenditure (and not nominal expenditure). The government acquires the resources it needs entirely through aid.

Food aid, being tied to food, will not enable the government to acquire non-food it needs for its investment without intervening in the domestic market. Assume, for simplicity, that the commodity composition of government investment is flexible so that the set of investment "isoquants" are the same as the set consumer indifference curves and the government maximizes the 'quantity' of investment given its expenditure and the relative price of food. Then, with food aid in the amount BB^1 becoming available, by letting the relative price of non-food to rise, equilibrium is established with aggregate use at $\hat{C}^1$ and production at $\hat{P}^1$ (Figure 3). Private consumption will be at $\hat{C}^{1P}$, the difference betwen $\hat{C}^1$ and $\hat{C}^{1P}$ represents government investment bundle. Of course, if the relative price of non-food for producers (or consumers) is to be kept unchanged, then as earlier an appropriate indirect tax or subsidy will be needed as an additional instrument and part of the aid may be used up in financing a subsidy.

2.3 Usual Marketing Requirements or Additionality

Let us now turn to the more realistic world in which the economy receiving food aid is open to international trade. To keep matters simple, let us avoid incentive issues discussed above by assuming the economy is a price taker in world markets and is rationally following a free trade policy. In the pre-aid equilibrium (Figure 4) production is at P^o, consumption is at C^o (with the slope of P^oC^o representing the relative price of food in world markets). Food imports equal C^oD^o. Suppose now food aid in the amount T^oT^1 becomes available. With prices unchanged (because of free trade), production remains at P^o, availability moves to A^1 and consumption moves to C^1 (under homotheticity). Food imports rise to C^1D^1. However C^1D^1 is less than the sum of the pre-aid commercial imports C^oD^o and food aid T^oT^1. Thus, part of food aid has been used to replace commercial imports.

Food aid donors would not wish to see their commercial sales reduced as a consequence of food aid. For this reason they impose what are called "usual marketing requirements" (UMR) as a condition for providing food aid. These can take various forms. But for simplicity assume that the donors require that the recipient country continue to import at least as much as she did from commercial channels prior to food aid. This means, given the aid, total imports (aid plus commercial) has to be at least $C^oD^o + T^oT^1$. As is well-known from the theory of non-economic objectives (Bhagwati and Srinivasan (1969)) the optimum policy to absorb food imports exceeding the level that would obtain under laissez faire is to have an import subsidy. This means that the domestic price of food will fall below world prices, thereby discouraging (encouraging) domestic production (consumption) of food sufficiently to increase imports of food

to the required extent. In Figure 4 an import subsidy on food moves the production point to P^2 from P^o, thus lowering (raising) the output of food (non-food), availability to A^2 and consumption to C^2 on the world price line through A^2 at which the slope of SIC is the same as the subsidy inclusive domestic price (that is, the same as the slope of the PPF at P^1). Food imports C^2D^2 now equals pre-aid imports C^oD^o plus food aid. Such a policy minimizes the welfare loss (relative to laissez faire) associated with meeting UMR.

This brings to the fore a possible conflict between the two objectives of the donors, namely between the desire to see incentives for food production in the recipient country not being adversely affected and the desire to see that export markets for food for donors are not adversely affected by aid. UMR serves the latter objective at the expense of the former if the optimal response of the recipient country through an import subsidy reduces the domestic price of food there. Of course, if the donors insist on both objectives being met, they will force the recipient country to use the policy of a food consumption subsidy rather than the first-best import subsidy, thereby imposing on it a further welfare loss relative to laissez-faire.

2.4. Food Aid and Nutritional Improvement of the Nutritional Status of the Poor

One of the objectives of food aid on the part of donors is the desire to improve the income and nutritional status of the poor in recipient countries thorugh some forms of targeted food aid. To explore this set of issues, let us utilize a partial equilibrium analysis as contrasted with the general equilibrium analysis of the earlier sections. On the other hand, let us be more general in another direction by considering the global food market. More specifically, let us aggregate all donors of food aid into one and all recipients into another, with the former

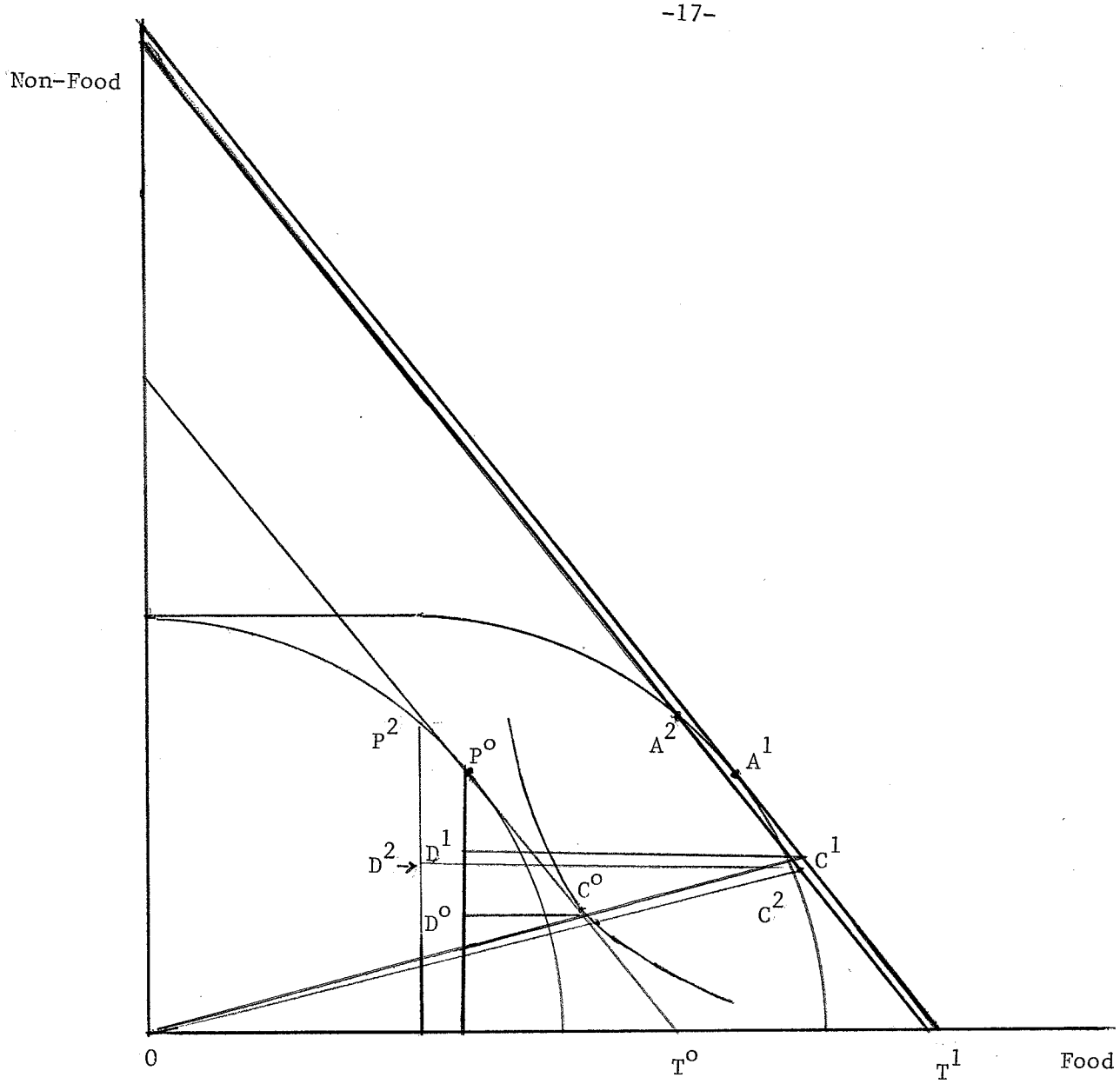


Figure 4

exporting food to the latter. Let us distinguish two distinct groups of consumers within the recipient region: the poor who have fairly price elastic demand and the rich who have fairly inelastic demand. Again for simplicity, assume that there is no domestic production of food in the recipient region. For the sake of variety let us illustrate with numerically specified export supply and demand functions rather than with diagrams!

The export supply function of the donor region is $0.9 + p$, where p is the price per unit. The demand functions of the rich and poor respectively are $10 - .01p$, $0 \leq p \leq 100$ and $2 - .1p$, $0 \leq p \leq 20$. In free trade with no aid the market clears at a price of 10, with donor region exporting 10.9 units of which 9.9 units are consumed by the rich and 1 unit by the poor in the recipient region. Suppose now the farm lobby in the donor region succeeds in raising the domestic price of food (by a 'modest' 5.5%) to 10.55. Export surplus goes up to 11.45. Were this is to be "dumped" in the recipient country market, the price would fall by 50% to 5, with the consumption of the rich going up to 9.95 and the poor to 1.50. Thus, export revenue would fall from 109 to 57.25! The cost to the donor country treasury of acquiring and dumping the surplus arising out of the domestic price increase would be $(10.55 - 5) \times 11.45 = 63.5475$. Policy makers in donor countries begin thinking that there must be better ways of disposing of the surplus created by their domestic price policy than to dump it in world markets! One such idea is food aid tied to its being used for the 'poor' in the recipient country.

The donor offers 1.55 units of the surplus food free to the recipient country to be sold to the poor, the resulting revenues being kept by the recipient country government. The rest of the surplus, i.e. 9.9 units is sold to the rich. Assuming that the markets in which the poor and rich buy their food are segmented so that the transactions cost for the poor

reselling to the rich at a higher price what they buy in their market are prohibitive, the sale in the rich market will yield a price of 10. Thus the price paid by the rich, and their consumption are the same as in the free trade equilibrium. The consumption of the poor rises by 55% to 1.55, the price they pay also falls by 55% to 4.5 as compared to the free trade equilibrium. The donors realize a revenue of 10 x 9.9 = 99 on the sales to the rich, thereby reducing the cost of their domestic price support program to 21.7975 from 63.5475, a reduction of more than 65%. The recipient country government realizes a revenue of 6.975 from the sale of food aid to the poor. Thus, in the recipient country, with aid, the rich are just as well off as in the free trade situation, the poor much better off and the government acquires revenues. As compared to the hypothetical equilibrium with dumping, in the aid equilibrium in the recipient region poor are better off, the rich marginally worse off (their food consumption under dumping would have been higher by .05 units or 5%), and the government is better off (it gets no revenue under dumping). The donor government, given that it has to raise domestic prices, is better off in the aid equilibrium compared to dumping, since it saves over 65% on the cost of price support!

The essence of the above example is that by inducing the recipient country to isolate the market with more elastic demand, i.e. the poor market, with the carrot of food aid and the right to keep the revenue from sales to the poor, the donor government achieves price discrimination. Indeed, it can do even better by giving the poor 2 units of food free of charge and selling the remaining 9.45 units to the rich at a whopping price of 55 (a jump of 550% over the price in free trade) and realize a revenue of 519.75 and make a profit of 420.9975! Clearly, the rich in the recipient country will strenuously resist such gouging! Achieving price discrimination through food aid with the consent and cooperation of the

recipient country government is the next best thing to gouging! Be that as it may, there is no reason to believe that monopolistic exploitation as ever the motivation of those who thought of food aid tied to the poor in recipient country as a less costly way of dealing with surpluses than dumping. However, that the cost saving in surplus disposal was achieved essentially through price discrimination is a realistic presumption.

2.5 Project Tying, Commodity Composition of Aid, and Use of Counterpart Funds

Food aid by definition is tied aid: it is tied to a commodity or set of food commodities given as aid. However, as we saw earlier, if there are no onerous usual marketing requirements and as long as the recipient country imports these commodities commercially and the volume of aid is not too large relative to commercial imports, commodity tying is of no consequence. Sometimes food aid is tied to particular projects, such as food for work projects (more on this below) in which part or a whole of the wages of workers employed in such projects are paid in kind with food received under food aid. There is no evidence to suggest that the availability of food aid led to the choice and implementation of projects that should not have been chosen. In any case, if projects proposed for implementation are evaluated using techniques of social cost-benefit analysis in which food aid is valued at its social opportunity cost, the availability of food aid per se will not necesarily make a project (that would not have been socially worthwhile if food were to be commercially imported) pass the social cost-benefit test. The social cost of food obtained through aid has to be sufficiently below its commercial import cost to bring it about.

Food aid, originating as it did with the accumulated surpluses in donor countries, is more often than not offered in commodities which

happen to be in surplus, mainly wheat, rice, corn, yellow maize and dairy products. As most of these commodities are internationally traded, the fact that aid comes in a particular commodity composition need not create any special problem to the recipent if onerous usual marketing requirements are not imposed as part of aid. By substituting for commercial imports or exports appropriately, aid can be absorbed without any domestic production effect. Even if the recipient country does not trade, as long as there are substitution possibliities either in the domestic production and consumption basket, aid can be absorbed by suitably altering the domestic production and consumption baskets through appropriate price changes. Of course, a problem can arise if conditions imposed on the recipient preclude trading part or whole of the aid given in one commodity for others needed and if there are absolutely no substitution possibilities in production and consumption. An example of such aid is yellow maize offered to Kenyans who prefered white maize. Since the same donor often provides aid to many countries with differing preferences and production possibilities, by permitting the recipients to exchange commodities received in aid for others which they can supply, the utility of aid to each recipient can be enhanced without affecting the donor's interests. Indeed, if such a swap can be planned ahead, some saving in transportation and other tansaction costs can be attained as well.

A potentially more serious problem arising from food aid is the change in consumption preferences in the long run in the recipient country towards the commodities supplied as aid. Although a shift towards imported 'superior' cereals (wheat and rice) supplied by aid and way from domestically produced 'inferior' coarse grains has been observed in West Africa (Delgado and Miller (1985)), as Mellor and Ezekiel (1987) point out that this shift may be simply a reflection of higher Engel elasticity for

wheat and rice, in addition to the effect of lowered price of wheat and rice brought about in part for absorbing aid. In other words, the shift in commodity composition of consumption reflects the same preferences (i.e. set of indifference maps), and changing budget constraints (prices and incomes) rather than a change in the preferences.

The possible real problem is not the shift in consumption patterns or preferences but the fact that the continuance of food aid in the indefinite future is uncertain, and even if it continues, its volume will certainly fluctuate. Thus, food aid can be cut or withdrawn in an unanticipated fashion. If the resources allocated away from the production of commodities supplied under aid to others cannot be flexibly be reallocated without excessive cost , then foreign exchange will have to be spent to import commodities when they are no longer supplied or supplied in smaller volumes under aid. In other words, unanticipated withdrawal of food aid constitutes an adverse shock to which the economy will have to adjust. And as with adjustment to any adverse (favourable) shock, the greater the flexibility with which resources can be reallocated the lower will be the social cost (greater will be the social benefit) of adjustment. There is sustantial evidence (Balassa (1985)) that economies which have maintained a neutral foreign trade regime between earning foreign exchange through export promotion and saving foeign exchange through import subsitution beyond that would have been dictated by dynamic comparative advantage considerations, have not only achieved efficient and rapid economic growth but have weathered bettter the adverse oil and interest rate shocks since 1973. Apart from the foreign trade regime, domestic distortions of various kinds, including those adversely affecting producer incentives in agriculture, and capability to respond to changing economic environment, including in particular to the availability of new

technologies, can impose high and avoidable social costs of adjustment.

Most of the above analysis was based on the assumption that food aid was an unrequited transfer. In reality this is not quite so. Until 1972 or so, the revenues generated in recipient country's currency (the so-called counterpart funds) by the sale of food aid received under US Public Law 480 Title I were put in some special accounts, the disbursal from which was governed by agreements between the US and recipient country governments. In effect the value of food aid was a US asset, albeit in local currency, but over the use of which the recipient had some say. Part of it was used for some US embassy expenses and part as a grant for investment on agreed projects. To the extent such expenses would have been incurred and such projects would have been aided even if counterpart funds were not available, use of local currency assets for such purposes meant that foreign exchange that would otherwise have accrued to the recipient did not. Thus, the foreign exchange saved by the recipient to the extent food aid replaced commercial food imports was 'lost' later in the sense of potential foreign exchange inflow foregone.

In cases where the project would not have been aided but for the availability of US assets in local currency, nor undertaken by the recipient in the absence of aid, the undertaking of the project adds to domestic demand which would have been otherwise absent, thereby adding to inflationary pressures usually present in many developing countries. Even otherwise since the use of accumulated counterpart funds is not associated with any fresh inflow of food or other commodities from abroad, some have argued that it is inflationary. In India there was an extensive debate on PL480 aid (Rath and Patvardhan (1967), Shenoy (1974)) and in particular on the inflationary potential of the use of PL480 funds and also whether the deposits of such funds in special accounts added to the money supply growth thereby adding another source of potential inflation [Sundaram

(1970) and the references cited by him)]. The debate was inconclusive, mostly because, whether or not the inflationary potential, if any, was realized depended on the assumptions one made about the actions (accomodating or sterilising) of the Indian government and monetary authorities.

2.6 Food Aid Dependency, Neglect of Agriculture and Long-Term Development

The permanent shift in consumption preferences towards commodities supplied as aid is only one example of alleged long-term deleterious consequences of food aid. One such consequence is said to be the complacency on the part of the recipient with a poorly performing agricultural sector, if not outright discrimination in favour of other sectors, in the confident expectation that food aid will be forthcoming to solve any emerging food problems, an attitude, it is claimed, that can be changed only by withdrawing food aid or by making it costly, politically, if not economically. For example, it has been suggested that the availability of cheap food under PL 480 enabled Indian policy makers to neglect agriculture and pursue an import substituting industrialization strategy emphasizing heavy industry at the same time keeping the vocal urban population, including industrial workers and the bureaucracy, happy with public distribution of subsidized food and other essential commodities. It is also claimed that President Johnson's blackmailing India so to speak by approving PL-480 shipments on a month-to-month basis while India was threatened with famine after two successive years of unprecedented drought in 1965-66 and 1966-67 ostensibly to change India's stance towards the Vietnam War convinced Indian policy makers of the dangers of food aid dependency and that the political cost of the neglect of agriculture was too high. In this version of history Indian policy

makers dramatically shifted the incentives in favour of agriculture, the green revolution was facilitated and, lo and behold, India exported food in the late eighties! However, great this version may be of satisfaction to the players of aid hardball in Washington and equally to those in India who would like claim that they were responsible for putting India out of the reach of food blackmailers, the facts are more prosaic. As I showed elsewhere (Srinivasan 1986), the available data do not support the contention that agricultural sector was much more favoured by Indian economic planners in the period since the mid-sixties than before in terms of allocation of investment. Nor is there any evidence for any significant change in the trend rate of growth of output of foodgrains or for that matter real agricultural output as a whole between the two periods. What did happen is a change in the components of growth, relatively larger proportion in the later period being accounted for by improvements in yield per hectare of cropped area and a smaller proportion by expansion of area. Of course, as is to be expected, the performance of different crops was not the same, with the growth in output of wheat (and to a lesser extent, rice) being substantially faster in the later period because of the adoption of the green revolution technology. This also suggests, that if indeed the planners shifted resources towards agriculture in the later periods, it may have been a rational response to the rightward shift in the marginal productivity of investment schedule for agriculture because of the green revolution, a technology that became available only in the mid-sixties.

The aid dependency argument is a multifaceted one. At the aggregate level, in an extreme form, it suggests that all foreign aid is used to substitute on a one-to-one basis for domestic savings, so that aggregate investment and hence the growth rate of aggregate output is unchanged. Thus, aid is simply consumed. Even in this form the implied behaviour of

the recipient is neither irrational nor suggestive of dependency. If aid (by which I mean the unrequited transfer element in external resource inflow) is confidently expected to be permanent, it is like an added permanent income flow. And theory would suggest that it be largely consumed. At the sectoral level, the argument has been stated earlier: availability food aid will either reduce producer prices and hence incentives to produce food and to invest in the capacity to produce food or simply end up increasing consumption of food (not necessarily on a one-to-one basis) with no impact on prices or incentives: As we saw in Section 2.1, both of these are essentially rational responses to a permanent availability of food aid.

There is one form dependency argument that may make some sense: the recipient country embarks on a development strategy that is rational were aid to be permanent but in fact, aid is not, so that at some stage in the development process the country is faced with a cessation or reduction of aid that it did not anticipate. As argued above, this is equivalent to an adverse shock on an economy that has geared its resource allocation intertemporally to aid availability (i.e. had become dependent on aid!) and as such, suffers a cost of adjustment whose size will vary with the flexibility and efficiency of resource allocation. But unless the recipient's expectations about permanence of aid were irrational and not based on all available information about aid flows, it is a misuse of the term, to call the adverse consequence of unanticipated aid curtailment as the effect of aid dependency. On the other hand, if despite all the available information to the contrary, a recipient chose to act as if aid was permanent, it is this irrationality, rather than aid dependency, that is responsible for the inevitable cost of adjustment when aid ceases.

2.7 Famines and Food Aid

Famine, according to the 1955 edition of the Oxford Universal Dictionary, means an instance of extreme and general scarcity of food, and in its transferred figuritive use, hunger and hence starvation. Yet not having enough food to feed everybody (i.e. general scarcity) does not mean everyone will starve. Equally, having enough food or more (i.e. absence of scarcity) to feed everybody does not mean that none will starve. Unless an individual has access to available food, directly or indirectly through having other things he can exchange for food, he is likely to starve regardless of food availability in the aggregate. This rather elementary and obvious point has been elaborately and elegantly made by Sen (1981). As documented by him, the Bengal famine of 1943, Bangladesh famine of 1974 and the Ethiopian famine of 1974 were not associated with any rapid decline in food availability. The Chinese famine of 1959-61 in which more than 20 million people are estimated to have died had much less to do with food availability shortfall and more to do with her political and economic system. Merely augmenting food availabiity per se through emergency food aid whenever an episode of famine is threatened may not be adequate to prevent starvation, let alone reduce the chances of future occurrence of famines. However, an overwhelming proportion of the world's poor depend on agricuture for their employment and income. As such, a serious crop failure erodes their incomes, and given the imperfection in credit and asset markets, they cannot borrow or sell their meagre assets to finance consumption except at high cost. In such circumstances, food (whether from foreign aid or from other crop failure free regions of the country) can be used for relief and food-for-work programs to employ those who can work and mass starvation can be avoided. Equally, if food-for-work programs financed by food aid are used even in normal years to employ rural labour in slack seasons in building irrigation works and

infrastructure including roads, the probability and intensity of crop failure can be reduced in the long run. Mellor and Gavian (1987) provide an incisive analysis of these issues.

2.8. The Role of Food Aid in the Adjustment Process

An important role for an expanded and more purposely used and sharply focused program of food in support of the "adjustment process" in developing countries has attracted attention, particularly in international bureaucracies involved in food aid (World Food Program (1987). Since by "adjustment" one means painful adjustment, anything that eases the pain will be welcomed by the adjustors. Analytically, there is nothing in food aid to suggest that it will ease the pain more than any other aid! If adjustment in the sense of reforming the policy framework, incentive structures and resource allocation mechanisms so as to enable the economy to perform efficiently and equitably in a changed external economic environment can be achieved without sacrificing growth, it is of course desirable. However, if the need for adjustment arises in large part from past policies that would not have been sustainable for long even if there had been no change in external environemnt, adjustment will necessarily involve sacrifices and even a pause in growth. In such circumstances, policy reform will not be credible (i.e. it will not remain in place for long if initiated) because the short-run resource reallocation and hardship will be too severe to permit political survival of the reforming regime. The availability of additional resources to the required extent to ease the pain of adjustment could bring credibility to reforms. It must be emphasized that this is a political and not necessarily economic argument--the reason is that the threat to political survival usually arises either because those who have to bear the burden of adjustment are politically powerful or because the burden is

inequitably distributed and not necessarily because the burden is too onerous if it is equitably shared, economically and politically. It also raises another troublesome issue: if development strategies pursued led to the crisis and not changes in external environment over which the country had no control, giving additional aid for adjustment in such a situation may encourage others to follow politically rewarding but economically unsustainable development strategies.

Similar considerations apply to food aid tied to policy reform or to choice of particular projects even if these were not part of an adjustment program. If an economy is following an appropriate development strategy and the social cost of a project exceeds social benefits were food imported commercially, as argued earlier, a donor may induce the choice of the project by providing food aid at a sufficiently low social cost to the recipient. But if aid is given to reduce the political cost to the regime in the recipient country to induce it to implement a project the donor regime prefers (possibly for reaping political benefits at home), the argument shifts to the political arena. But to 'bribe', so to speak, the regime in the recipient country to change bad policies (introduce 'policy reform') will give the wrong signal to others.

3. Trade Versus Aid in Combating Hunger: Agricultural Trade Liberalization or Larger Aid Flows?

There is perhaps no country in the world in which the government does not intervene in the determination of agricultural output, foreign trade and prices. Obviously, interventions that affect a country's imports or exports, such as quotas, tariffs, voluntary export restrictions or import expansions not only affect that country but the international market, the quantitative significance of the effect depending on how large a trader the country happens to be in world markets. Less obviously, domestic

interventions, whether acreage rstrictions, set aside programs, credit subsidies, price supports etc. affect the international markets as well. The interventions are so many and their nature so complex that disentangling their individual effects is an almost impossible task. However, their combined effect in in terms of the difference between domestic and border prices (i.e. c.i.f. import prices or f.o.b. export prices) can be viewed as a measure of protection. By this measure average agricultural protection varied from -19% in Indonesia to a whopping 175% in Japan during 1975-1976. Only Australia, New Zealand and Thailand had negative protection besides Indonesia (Parikh et al (1986)). Of course, changes in the protection regime by one or more countries in the global market will affect all and call for adjustments by each. One needs a fairly sophisticated set of general equilibrium models, one for each country or region, linked together by global market clearing for a satisfactory analysis of changes in protection levels. A team of researchers at the International Institute for Applied Systems Analysis (IIASA) put together a system of empirically estimated models, distinguishing 18 countries, two regions (EEC and the Eastern Bloc) and 15 simpler models for groups of the remaining countries of the world (Parikh et al (1986), Parikh and Tims (1986)). The models distinguished 10 commodities: wheat, rice, coarse grains, bovine and ovine meat, other animal products, dairy products, protein feeds, other food agriculture, non-food agriculutre and non-agriculture. The model solved for equilibrium domestic and international prices sequentially. The simulation period was 1980-2000. A reference simulation of basically unchanged policies was compared with simulations of policy scenarios ranging from unilateral trade liberalization by OECD and the developing countries to multilateral liberalization by all market economies. In addition to trade liberalization scenarios, several other scenarios were

simulated. In one, grain supplies in the world market are increased through (a) an extra 50 million tons of wheat thrown on the world market each year, and (b) 50% reduction in the consumption of meat in OECD countries. In another, higher prices for producers in developing countries was assured by reducing OECD output by 25%. In contrast with these scenarios whose impact on the poor works mainly through changes in market prices facing them, three aid scenarios were simulated. In scenario A1, developed countries provide additional aid to the tune of 0.5% of GDP (over and above the present level of about 0.35%) in the form of program aid. Additional aid is distributed to developing countries in inverse proportion to their per capita incomes. In scenario A2, additional aid is given as project-tied aid to be saved and invested. The results of market price mediated and aid mediated scenarios are shown in Tables 2 and 3 in terms of the number of persons hungry, i.e. not having nutirtionally adequate food energy intakes.

These results show that market price mediated effects on hunger in developing countries are modest. For example, even though the volume of additional food needed to raise the food intake of the entire population of devleoping countries to nutritional adequacy is about 50 million tons of wheat in 2000, simply adding 50 million tons of wheat to the market supplies will reduce the number hungry by only 2%. The reason is that the global market systems adjust to the extra wheat put on the market through price reductions, shift of resources away from wheat etc. The net result is that, because of reduction in food output induced by these changes, the net addition to food consumption is far less than the 50 million tons thrown on the market and the consumption of the poor increases even less. Interestingly, given the protection levels in developing countries,

consumers, particularly the poor, are better off when they liberalize and worse off and signficantly so when their domestic producer prices are increased. Agricultural protection in OECD and the consequent surplus disposal actually helps the poor in developing countries by reducing world market prices below what they would have been were there no surpluses.

In contrast to the above, the results in Table 3 show substantial reductions in hunger, particularly in low income countries when the volume of aid is increased. It does not make any difference by year 2000 whether aid is program aid as project aid. However, with aid tied to investment, the time patern of reduction in hunger is different, with only a small reduction initially, but catching up with program aid by 2000. More significantly, the reduction in hunger with project tied aid persists even if aid is discontinued after 15 years.

4. Subsidized Food Distribution, Food-For-Work Programs and Hunger in India

The India model (Narayana et al 1987a, 1987b) of the BLS system of IIASA models distinguishes 5 different socio-economic groups within the rural and urban areas of India, each group defined by its monthly household real consumption expenditure per head. A household in each group has a claim on the output of the economy depending on its factor endowments, and any income transfers from the government and the direct taxes it pays. It saves part of its income and spends the rest on consumption of the ten commodities distinguished in the model, given their prices, according to a linear expenditure system separately estimated for each group. The mdoel is thus better equipped to analyze income distribution issues than representative consumer models.

In the simulations with the model reported here, India is viewed as a small open economy facing parametrically given international prices, the time path of which was taken from the reference scenario of the BLS system

Table 2

Global Food Market and Hunger

Scenario	Year	
	1990	2000
1. Reference (million persons)	470	400
	(Percentage change over reference scenario)	
2. 50% more wheat in the market	-3	-2
3. 50% less meat consumption in OECD	-7	-1
4. Better producer prices in developing countries	+11	+9
5. Agricultural trade liberalization		
(a) By all market economies	+1	+1
(b) By developing countries	-5	-5
(c) By OECD countries	+3	+4

Source: Parikh and Tims (1986), Box 3.

Table 3

Aid and Hunger

Country Group	Number Hungry (millions) in 2000 Reference Scenario	Percent Change Over Reference Scenario	
		A1	A2
All Developing Countries	400	-32	-32
Middle Income	30	0	+ 4
Low-Middle Income	60	-13	- 8
Low Income	310	-40	-40
of which India	155	-54	-56

Source: Parikh and Tims (1986), Box 4.

as a whole. In the reference scenario a basket of rice, wheat and coarse grains (in fixed proportions) weighing approximately 135 kgs. is distributed to all urban residents in each year at a subsidized price (approximately 20% subsidy). The foodgrains needed are purchased from thefarmers at a price below the equlibrium open market price. Three alternative distribution policy scenarios are compared with the reference scenario. (i) in DO both subsidized public distribution and food purchase at below market prices from farmers are abolished, (ii) in D1, 100 kgs. of wheat is distributed free of charge to all residents of India (rural and urban), with the cost of procuring the needed grains being financed by additional income taxes, (iii) in D2, the cost of free distribution of food is accomodated by a reduction in aggregate investment while keeping the tax rate fixed at its level in the referene scenario. The results are presented in Table 4 in terms of the population in each expenditure group and its average equivalent expenditure (i.e. the expenditure needed at 1970 prices to achieve the same welfare as is being attained in the relevant scenario in year 2000). Thus, equivalent expenditures are comparable across scenarios.

It is seen from Table 4 that the abolition of the distribution of subsidized food distribution in urban areas (and the associated implicit procurement tax on food producers in rural areas) in DO as compared to the reference scenario, as is to be expected, improves rural income distribution slightly and worsens the urban distribution. The macro indicators do not differ much. Interestingly, extension of the public distribution of foodgrains to rural areas, making it completely free and financing it through an increse in income taxes (levied mainly on the urban rich) in D1 improves rural income distribution significantly: the number of persons in the poorest class falls by 57 millions compared to REF, the number of persons in the middle three income groups rise and the

Table 4
Impact of Alternative Public Distribution Policies in Year 2000

Exp.	REF		DO		D1		D2	
Group	P	E	P	E	P	E	P	E
Rural								
1	147.6	132.8	149.1	136.3	90.6	153.4	97.0	153.5
2	114.0	261.4	113.8	270.6	135.5	261.4	138.9	261.7
3	136.0	399.1	135.2	413.5	154.4	401.5	153.7	401.9
4	154.9	616.2	154.8	634.3	165.8	613.4	169.7	615.5
5	166.0	1227.3	165.7	1233.8	172.4	1169.2	159.2	1168.1
Urban								
1	1.5	171.8	2.4	169.2	0.6	171.3	0.9	170.3
2	10.6	272.9	12.2	271.6	8.3	271.2	11.7	269.6
3	41.2	394.8	42.5	390.6	39.4	392.7	47.7	393.1
4	109.0	604.9	108.0	596.7	110.4	596.0	116.4	600.3
5	167.3	1223.6	164.6	1199.1	171.1	1158.0	152.9	1164.0
Macro Indicator								
Real GDP (Index; 1980=100)	270		270		272		244	
Average Energy Intake Per Capita (kcals per day)	2569		2581		2610		2539	
GINI-E	0.3445		0.3418		0.3100		0.3149	

P: Population in millions. Total rural population is 718 millions and urban population is 330 in all scenarios.

E: Equivalent Expenditure Per Capita (1970 Rupees).

Source: An unpublished longer version of Narayana et al (1987a).

number in richest group falls. The income distribution in urban areas also improves though not as dramatically. With investment kept unchanged, aggregate growth (i.e. GDP) is essentially unchanged, while the average energy intake rises and the Gini coefficient of equivalent expenditure falls. When the free distribution of food is financed by a reduction in investment rather than through an increase in taxes as in D2, naturally aggregate growth is affected--GDP is less by about 10% and the improvements in income distribution in rural areas are slighty attenuated compared to D1. An implication of the comparison between D1 and D2 is that if the free distribution of food could be financed through aid, rather than tax increases, the improvements in D1 as compared to REF would be even more dramatic.

Rural works programs (RWP) in India are meant to provide gainful employment to rural workers, particularly during slack seasons, in creating productive assets. The facts that the participation in these programs was voluntary and largely the poor participate are added advantages in that these enable better targeting of the poor for other poverty alleviation programs. However, the execution of these programs has been criticised on the grounds that the works are often poorly designed and hence unproductive and that the benefits largely accrue to non-target groups because of corruption etc. In specifying rural works scenarios in the model, the efficiency of design and targeting can be varied.

More specifically, the two poorest expenditure classes constitute the target groups. Each person in these two classes together receives an average of 100 kgs. of wheat per year as wages for participation in RWP, while each person in the poorest class receives 125 kg. Other inputs besides labor are needed for constructing rural works and the cost of these inputs are assumed to be 50% of the wage bill. Half of the works

created are assumed to be used for agricultural prouction and the other half for non-agricultural production.

If the RWP is well designed and executed, the value of the entire expenditure is translated into assets of equal value. At the other extreme, a poorly designed and executed program spends the resources but creates no productive assets. Thus, efficiency is defined as the ratio of the value of assets created to the value of resources spent, and this ratio 'e' takes two values 1 and 0. Targeting failure is captured by a parameter 't' taking the values 1 and .5. Thus, a proportion 't' of the wage bill is assumed to reach the two poorest rural expenditure groups (the target groups) and the remaining (1-t) accrues to all the other rural classes in proportion to their population. Scenarios are designated by R-e-t. Thus, R-1-1 means a well-designed and well-targeted rural works program. The two alternative values for t and e together yield 4 scenarios in all of which the expenditure on rural works is financed by reducing other investment (compared to the referene scenario) rather than through increases in taxes. However, in scenario R-1-1-T the cost of rural works is financed by additional taxation while keeping investment unchanged as in the reference scenario. The results are presented in Table 4 in terms of the value of the relevant variable in the policy scenario as a percentage of its value in the reference scenario.

It is clear from Table 5 that rural works programs have a substantial impact on the poor. A well-executed and targeted program raises the equivalent and energy intake of the poorest class by 30% and next poorest by 40% relative to the reference scenario with no rural works. With their cost coming out of investment, aggregate growth is somewhat lower. As is to be expected, a poorly executed and well-targeted program sitll yields the same benefits for the poor--because they are the beneficiaries of the expenditure on the program. But spending resources in creating

Table 5

Impact of Alternative Rural Works Programs

Variable	Scenario*				
	R-1-1	R-1-0	R-0.5-1	R-0.5-0	R-1-1-T
Average Real GDP Growth Rate (1980-2000)	95.1	85.6	96.1	87.0	104.3
Average Equivalent Expenditure Per Capita in 2000:					
India	99.8	94.6	100.0	95.3	102.2
Poorest Rural Class	167.0	167.0	133.0	133.0	167.0
Two Poorest Rural Classes	139.0	139.0	119.0	119.0	139.0
Average Energy Intake Per Capita (kcals per day) in 2000:					
India	104.7	102.6	103.0	101.0	105.7
Poorest Rural Class	170.0	170.0	140.0	133.0	170.0
Two Poorest Classes	140.0	140.0	120.0	119.0	140.0

*Each variable is expressed as an index with its reference run value set at 100.

Source: Narayana et al (1987b).

unproductive assets naturally affects aggregate growth adversely (compare R-1-1 with R-1-0 or R-0.5-1 with R-0.5-0). Targeting failure reduces the benefits to the poor by nearly a half (compare R-1-1 with R-0.5-1 or R-1-0 with R-0.5-0). If a well-executed and targeted program can be financed through additional taxes rather than by reduction in investment, the poor will benefit as much and the economy will gain growth. A fortiori, if instead of addtional taxes, aid becomes available, benefits as well as growth could be even further augmented.

5. Food Aid: Some Relevant Experience

food aid in the form of cereals has declined substantially from its peak in the mid-sixties. There was a decline of nearly 10 million tons in food aid by the USA in 1984-85 from a peak of over 17 milion tonnes in 1965-66 (see Table 1). This was compensated only partially by the emergence of other donors, mainly the EEC. The decline in US aid was mainly due to changes in the domestic price support program. Briefly stated, the program, as it operated until the mid-sixties, contributed to the accumulation of stocks which reached a peak of over 1.5 billion bushels of wheat or over 118% of all uses in 1960-61. In part, as a means of stock disposal, food aid shipments also grew from under 150 million bushels in the early fifties to a peak of 572 million bushels in 1965. The so-called 'loan rate,' or basic support price, was reduced from $2.00 per bushel in 1962 progressively to $1.25 in 1965. Taken together with other supports, the overall reduction was from $2.00 in 1962 to $1.69 in 1965. Stocks began declining and with the extraordinary food aid shipment to India in the two drought years of 1965-66 and 1966-67, they fell to a low of 513 million bushels in 1966-67 or 36% of all uses. Although stocks then rose only to fall again to an even lower value of 340 million bushels in 1974, the year of large sales of wheat to the Soviet Union, they recovered and surpassed their 1960-61 peak in 1982-83 in absolute terms.

However relative to all uses, the 1982-83 stock was only 63% as contrasted with 118% in 1960-61. This was in part due to a rise in domestic consumpmtion relative to production, but also due to non-food aid exports, particularly to USSR and eastern Europe, becoming significant in the seventies. Aid shipments did not recover, and, after falling to a low of 58 million bushels in 1973, they were back in 1984 to 158 million bushels, a level reached in the fifties. It must also be added that the terms of US food aid also became harder. For example, payment in terms of local currency was phased out, the impact of which can be seen from the fact that in the peak aid year of 1965 nearly 70% of 512 million bushels of wheat exports under aid programs was sold for foreign soft currency. By 1972 none of it was. Further, recipient countries had to bear an increasing share of transport and other costs as well. (Wheat stock and other data are drawn from several USDA publications.)

It was mentioned earlier that until the mid-sixties a large fraction of food aid went to India and Pakistan. In both countries a development strategy based on import substituting industrialization was facilitated by cereal imports under food aid which were used to supply a substantial part of the subsidized distribution of grains through ration shops in urban areas. Such rationing helped reduce food costs for workers in organized manufacturing industries and in the public sector. When India experienced two consecutive droughts of unusual severity in 1965-66 and 1966-67, famine was barely averted by the importation of over 10 million tonnes of cereals largely under PL480 food aid from USA. Lele and Agarwal (1987) suggest that the unacceptable political conditionality imposed with this aid (see Section 2.6 above) led Indian authorities to shift resources to agriculture so as to achieve self-sufficiency in food as quickly as possible and become less vulnerable to food blackmail. They also point out that earlier US technical assistance (governmental as well as private, mainly from the Rockefeller and Ford Foundations) in setting up agricultural universities and strengthening research capability in plant breeding, helped India to reap substantial gains from the green revolution technology that became available in the mid-sixties.

As pointed out earlier, the political pressure interpretation of US-India food aid relationship is not universally accepted. For example, India's ambassador to the USA at that time has denied that any political pressure was applied along with food aid. However, the contribution of agricultural universities and the Indian Agricultural Reserach Institute in breeding varieties more suitable to Indian agro-climatic conditions has been extremely important in the success of the green revolution. But external aid to these institutions was technical assistance and not food aid.

Another major recipient of food aid in the fifties and sixties was Egypt. Handoussa (1987) claims that during 1959-66 the availability of food aid under PL 480 enabled Egypt to save foreign exchange that would otherwise have been spent on commercial food imports. The saved foreign exchange was spent on importing capital goods needed for industrial investment and growth. More than a third of merchandise imports in 1975 and a fourth in 1984 were accounted for by food imports, mainly of wheat, vegetable oils and sugar. Rice exports and output of wheat declined during 1975-85. Cereal imports increased from about 50% of domestic production in 1975 to 100% in 1984-85. Cereal consumption grew at a phenomenal 15% per year on an average during the same period. This course of events was largely due to the heavily subsidized food distribution policy backed by imported food that was shown to be politically difficult to change by the riots that ensued when a reduction in the subsidy was attempted.

In the seventies and the eighties sub-saharan African countries have been the major recipients of food aid. To cite just a few cases from a study on Managing Agricultural Development in Africa by the World Bank, during the period 1970-85 the volume of food aid grew at an average annual rate of 4.1% in Cameroon, 43.1% in Kenya, 28.6% in Malawi, and 23.5% in Tanzania. Ezekiel (1986) states that between 1985 and 1990 food aid requirements will grow by about 25% in Kenya, 20% in Tanzania, 15% in Senegal and 14% in Cameroon. There is also an increasing tendency to use food aid as a lever to promote

structural adjustment and policy reform (World Food Programme (1987)). For example, in the late seventies the US provided food aid to Bangladesh more or less as a grant under Title III of PL480 in a multi-year program to sustain Bangladesh's attempt to reduce food subsidies and move towards an open market food pricing system. Eleven food aid donors, including the World Food Progamme (WFP), have agreed to provide food aid to Mali in return for her restructuring the cereal marketing system, reducing the deficits of the parastatal marketing boards, stabilizing cereal prices and improving farm incomes. A more broad-ranging reform of the agricultural sector conditioned on food aid is being attempted in Senegal and Madagascar. In Ghana, where disastorous policies had resulted in a substantial fall in real wages and productivity over several years, food aid, under WFP and the World Bank, is being used to augment the real wages of workers engaged in key export sectors as well as in the improvement of roads, post facilities and other infrastructure. In Grenada, local resources generated from sales of food aid have been earmarked for specific use in support of a structural adjustment and reform plan. On the other hand, in Morocco, food aid is to be used in a compensatory program for people placed at nutritional risk during a structural adjustment plan aimed at the elimination of food subsidies by 1990. The adjustment program was expected to reduce the real income of the very poor by a fifth placing them at nutritional risk. By expanding ongoing supplementary feeding and school feeding projects using additional project food aid provided by the US and World Food Programme, this risk is expected to be avoided. Since the results from most of these program are not yet available for evaluation, it is too soon to judge the effectiveness of food aid in easing structural adjustment costs.

6. Policy Implications and Conclusions

Food aid can play a useful role in furthering development and poverty amelioration in situations in which the recipient country is generally

following an appropriate development strategy and the aid is used either in support of distributive policies that are effectively targeted at the poor or in financing efficiently executed and effectively targeted investment projects. On the other hand, the use of any aid, in the form of food or foreign exchange, in support of policy reform and adjustment has to be carefully thought through so that it does not end up encouraging the very thing it wants to eliminate, viz. inappropriate policies. Of course, the effectiveness of the use of food aid can be enhanced substantially through proper design, the choice of commodities, the flexibility with which recipients could exchange with each other commodities supplied by aid and their own output so as to make each recipient achieve greater benefits etc. (Mellor and Ezekiel (1987), Hopkins (1987).

During the 50's and 60's the US and Canada were the major food aid donors and South Asian states of India and Pakistan, Sri Lanka and to a lesser extent other Asian states (Korea and the Philippines) got most of the aid. With the dramatic increase in food output in all of them and some of them accumulating large food stocks (over 25 million tons in India in June 1987) in the eighties, it is tempting to conclude that purposively used food aid is a major factor in this turn-about. However, such a conclusion is too facile. Certainly, food aid at concessional terms, particularly in years when domestic output was way below trend levels because of unprecedented droughts, helped India avert what could have been major disasters. But, whatever push or persuasion or leverage that aid donors may have applied, it is the availability in the mid-sixties of dwarf varieites of wheat and rice with high yield response to the use of heavy doses of chemical fertilizers that largely explains the turn about. Some of the domestic policy distortions, such as the zonal restrictions in the movement of food, had been removed even earlier. Of course, the new technology brought in its wake new distortions: fertilizer subsidies, irrigation subsidies, price support at levels that led to accumulation of stocks etc, although the extent of their distortionary effects

is hard to judge since the distortions in favour of agriculture were in part corrections for distortions in other sectors that in effect penalized agriculture. It may be time now to remove or reduce these distortions. Still, the fact remains, that the availability of technology and the desire to exploit it induced these, albeit distortionary, producer incentives.

With Sub-Saharan Africa (SSA) replacing South Asia as the major recipient of food aid (the share of SSA in cereal aid has gone up steadily from under 5% in 1970-71 to nearly 50% in 1984-85), it may be thought that in SSA also, food aid leverage can be used to turn the situation around. Extreme caution is warranted before any such conclusion is drawn. First of all, the domestic policy distortions with respect to agriculture in SSA appear to be far more serious and pervasive than they ever were in South Asia. In fact, South Asia never experienced a decline in the trend of growth of food or agricultural output, let alone a negative trend. Although severe droughts in the Sahel etc. are partly responsible, still the declining <u>trend</u> in SSA output is a reflection largely of policy failures. Most important of all, in South Asia a research infrastructure existed that could rapidly turn out rice and wheat varieties that were bred to suit local conditions, once the dwarf genes became available. And in addition, an extension service for spreading the knowledge about new varieties could be assembled, although some may claim that it is still inadequate. None of these conditions exist in SSA to the same extent, not to mention the differences in soil, climate and factor endowments between SSA and South Asia. One should not be unduly optimistic about the quick success of food aid conditional on policy reform. To put it more bluntly, dommestic policy failure is the cause and the current food aid levels are symptoms of the food crisis in SSA. It remains to be seen whether policy reform-conditioned food aid will prove to be a cure.

Finally, for reasons discussed earlier, linking food aid with structural adjustment is problematic. In any case, the adjustment problems in SSA and in

the heavily indebted, but considerably richer, Latin America are very different. It is unlikely that in much better agriculturally endowed Latin America food aid will have much of a role to play in the structural adjustment process.

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